Despite the costs and risks involved, the eventual benefits to be obtained from programmed self-instruction in foreign languages appear very promising and worthwhile, in the opinion of the present writer.

FUTURE DIRECTIONS

If programmed self-instruction in foreign languages is to be successfully undertaken, the following future directions for research and development need special attention:

1. Refinement of programming techniques. A host of interesting and fruitful problems for research presented themselves in the course of the present investigation. Most of these problems were merely by-passed or laid aside in the development of the program, since it was necessary to assume tentative solutions. Among the most interesting problems were: What are the best techniques for teaching phonemic discrimination? What techniques are available for teaching accurate phonemic production in the absence of a live instructor? At what rate should new items be introduced? How much review and repetition of previously-introduced items is desirable? What are the most effective kinds of practice to insure mastery of grammatical patterns? At what rate should prompts and cues to responses be "vanished"? How rapidly can auditory material be speeded up and still be within the auditory comprehension speed of the learner? What aspects of foreign language learning present most difficulty for low aptitude students, and how can programs be adapted to the needs of such students?

2. Partial mechanization of the production of programs. In view of the enormous labor in laying out and writing programs, a partial mechanization of this process, possibly through the use of high-speed computers, would be desirable. There is a distinct possibility that computers could be programmed to accept coded information concerning the phonology, structure, and lexicon of the language to be taught and on this basis lay out a skeleton of a program that could then be "fleshed out" and refined by competent teaching-machine programmers. For example, vocabulary items could be introduced and repeated at controlled rates, and the same might be true of grammatical and phonological items.

3. Simplication and refinement of audio-visual presentation devices. The prototype audiovisual presentation devices developed for this research presented many difficulties. They lacked a satisfactory degree of sturdiness and reliability, and they were not easy to use because insertion of program material (film and tape loops) was inconvenient, time-consuming, and delicate. A thorough re-design of the equipment in the light of these difficulties would be necessary. The suggestions made by Waite (1963) concerning audiovisual teaching machines might be of value. In addition, some aspects of the programming system might be simplified. For example, so little use was made of the "Prompt" area by our subjects that serious doubt exists whether this feature of the programming system is necessary. Similarly, there seemed to be little reason to use the "Testing" mode of operation of the machine, and serious thought should be taken as to whether it is superfluous. On the other hand, there seemed to be very positive advantages in the system whereby the same material could be presented in both Familiarization and Learning modes; the system whereby this is done (presently, through the use of shutters and two separate tape cartridges) might be made more efficient and economical through the use of modified electro-mechanical features.

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Appendix A - Detailed Outline of Program

Loop	Frames	Learning task	New phonology	New grammar patterns	New vocabulary (Frame no. in [ ])
I-1	0-11	Learn discrimination of the four tones on monosyllables. Learn numbers assigned to tones and their diacritics. Imitate tones. Learn transcription of phonemes indicated.	Tones 1,2,3,4 and their diacritics; Phonemes m, l, f, a, ei, ai	--	--
	12-22	Practice discriminating tones for introductory vocabulary; indicate which tone in each case. (Not necessary to learn meanings in these frames.) Learn transcriptions.	Phonemes w-, n-, t-, g-, h-, b-; Syllabic nuclei -o, -i, -au, -ang, -en, -u. Zero tone.		[12] wǒ = I [13] nǐ = you(sing.) [14] tā = he,she,it [15] gāu = tall [16] máng = busy [17] lèi = tired [18] hǎu = good [19] hěn = very [20] -men = plur. for pron. [21] bù = negative prefix
	23-28	Practice imitating syllables (say aloud and confirm)	--	--	--
	29-41	Learn to translate simple sentences in the pattern N-SV, both Chin. to Eng. and Eng. to Chin. Learn what a stative verb (SV) is. Learn meanings of vocabulary of frames 12-22; learn both spoken and transcribed forms with tones.		N-SV (N=noun or pronoun SV=stative verb)	--
I-2	0-5	Learn new vocabulary (with tones) and sentence by repeating phrases, noting meanings, and translating. Learn transcription.	Syllabic nucleus -in.	N bù-SV N hěn SV N buhěn-SV	[1] nín = you (sing.,polite)
	6-17	Learn three patterns for asking questions, and pattern for answering questions. Translate in both directions. Use previously learned vocabulary.	--	N-SV ma (simple quest.) N-SV bu-SV (choice-type question) N bu-SV ma (negative simple quest.)	[6] ma = particle for question
	18-24	Learn new sentence pattern and vocabulary; note lack of singular-plural contrast in nouns. Translate in both directions. Response both multiple-choice and free.	--	S V O (Subject-Verb-Object) and three question transformations	[18] kàn = read, look at [18] bàu = newspaper [19] bǐ = pen
	25-34	Learn new phrase-pattern and vocabulary with tones. Further practice with various sentence patterns and transformations. Translation.	Phonemes y-, d-	N_{mod}-N	[25] Měigwo = American [25] Yīngguo = English [26] Fàguo = French [26] Déguo = German
	35-36	Learn rule about sequence of third tone.	Tone sequence 3-3 changes to 2-3.	--	--
	37-42	Discriminate aspirated and unaspirated initial stops p-, b-; t-, d-; k-,g-; pronounce properly. Further practice with sentences.	--	--	--

APPENDIX A (Continued)

Loop	Frames	Learning Task	New phonology	New grammar patterns	New vocabulary
I-3	0-20	Practice rapid comprehension of questions. Listen to Chinese sentences, answer questions based on them by MC or FR.	--	--	--
	21-25	Practice question transformations.	--	--	--
	26-36	Answer questions in Chinese using printed English cues (speaking or writing)	--	Note that hěn alone does not occur.	--
	37-40	Further practice in discriminating initial stops, identifying tones.	Phoneme cluster bw-	--	--
II-1	0-19	Learn new vocabulary (spoken and written with tones), in sentences of previously learned patterns; translate in both directions; speak; write transcription; answer questions.	Phonemes and phoneme clusters sh-, gw-, py-, j-; -r- as syllable nucleus (all presented incidentally)		[1] mǎi = buy [2] yàu = want [3] shū = book [8] hǎukàn = good-looking [9] gwèi = expensive [10] pyányì = inexpensive [15] Jūnggwo = Chinese [13] Rben = Japanese [13] wàigwo = foreign
	20-22	Learn new vocabulary; translate, speak, write	--	shéma and shéi in questions	[20] shéma = what [21] shéi = who
	23-33	Learn numerals with -ge classifier.	Phonemes and phoneme clusters ly-, s-, ch-, jy-, -z- (all presented incidentally)	Num-M N (M= Measure)	[23] yíge = 1 [23] lyǎngge = 2 [23] sānge = 3 [24] sìge = 4 [27] wǔge = 5 [27] lyòuge = 6 [30] chīge = 7 [30] bāge = 8 [31] jyǒuge = 9 [31] shíge = 10
	34-45	Learn new vocabulary and sentence patterns; translate, speak, write; describe pictures.	--	Use of dou; jeige, neige, neige as SP (specifiers); N shì N (equational sentence)	[34] dōu = all [36] jèige = this [36] nèige = that [37] něige = which? [39] shì = is [41] jūng = clock [41] byǎu = watch
II-2	0-13	Learn new vocabulary and sentence patterns; translate, speak, write.	--	S V O_1 O_2 (O_1=indirect object) S AV V O (AV=auxiliary verb)	[1] gěi = give
	14-21	Discriminate phonemes which have been introduced: j-, ch-, sh-, -r-; r-; -z-; sz, dz, p-, py-; l-, ly-; d-,dy-; t-, ty-; lw-; sw-, chw-.	--	--	--
	22-27	Further practice: comprehension and generation of sentences.	--	--	--
	28-42	Use of -ge and -ben as numeral measures. Further practice with Num-M N patterns; dou; -ben with SP's; contrast N shì N with N SV patterns. Practice in comprehension and generation of sentences (through translation).	--	--	[29] -ben = measure for [book] volumes

APPENDIX A (Continued)

Loop	Frames	Learning Task	New phonology	New grammar patterns	New vocabulary
II-3	0-18	Learn miscellaneous details of grammar. Comprehension and generation of sentences.	Phonetic value of -e after y-.	Transposed object pattern: O S V; O S dōu V; position of ye; Chǐng V...	[5] yè = also, either [7] yǒu = have [8] méiyou = have not [11] syǐhwan = like [12] tài = too [13] chǐng = please, ask [15] chyán = money
	19-24	Pattern practice in presentation area; speeded sentence translation in Q-area.	--	--	--
	25-32	Learn B's part of a dialogue	--	--	--
	33-40	Learn A's part of a dialogue	--	--	--
II-4		(Learning Mode only)			
	0-35	Practice in transcribing Chinese syllables, involving discrimination and memory for phoneme-letter associations. 2 syllables per frame.	--	--	--
	36-60	Practice in pronouncing Chinese syllables presented in transcription.	--	--	--
III-1	0-18	Learn construction of numbers 11 to 99		Num-shí-num	[1] èr = 2 (in counting, higher numerals)
	19-22	Note tone changes in yí and chī.	Tone changes in yí and chī.	--	--
	23-38	Learn new vocabulary; translate simple words and phrases (speak and write transcription); answer questions; review of numbers.	--	--	[23] rén = person, man [26] rénrén = everybody [27] yǒude = some [28] péngyou = friend [29] jwōdz = table [30] yǐdz = chair [31] kěshr = but [32] jǐ = how many? [33] dà = big (SV and A) [34] syǎu = small (SV and A) [36] shwō = say [37] dǔng = understand [38] dwèi = correct
	39-43	Same as for frames 23-38, but learn new patterns with SP	--	SP + Num + M SP + M (with N understood)	[42] syèsye = thank
III-2	0-6	Learn construction of numbers above 100. Translate Chinese to English.	--	Construction of larger numbers	[1] bǎi = hundred (Num) [2] chyān = 1000 (Num) [3] wàn = 10,000 (Num) [4] -kwài = dollar (M) [5] -máu = dime (M) [6] -fēn = cent (M)
	7-17	New vocabulary and associated constructions.	--	--	[7] jǐr = paper [8] jāng = M for paper, etc. [9] hwàr = painting [10] mài = sell [11] yígùng = altogether [12] dwōshau = how many? [13] líng = zero [14] yìdyǎr = a little [15] jǐ̄ou = only, just [16] gou = enough (SV)

APPENDIX A (Continued)

Loop	Frames	Learning Task	New phonology	New grammar patterns	New vocabulary
III-2 (cont.)	18-27	More complex money expressions. Translate Chinese to English, with amounts of money. (Very little translation of English to Chinese.)	--	Num-Num as in "three or four" Alternate expressions for money. Permitted omissions of measures	--
	28-40	Practice with material presented in frames 1-27. Mostly translation of Chinese to English. Various contrasts pointed out or made the critical element in a frame (e.g., frame 37, chyān vs chyán).	--	--	--
III-3	0-18	Review of previous materials. Practice in listening to fairly rapid speech. Answer questions based on spoken Chinese heard.	--	--	--
	19-29	Learn A's part of a dialogue	--	--	--
	30-40	Learn B's part of a dialogue	--	--	--
III-4		(This loop used only in learning/testing modes)			
	0-40	Miscellaneous practice "to gain more active command." E.G.: "Write and say in Chinese" [1, 4] "Which of the following can't fill the blank?" [2] "Say in several ways" [5, 6] "Transcribe and translate"(from Chinese heard on tape) [7] "Answer in the negative" (sentence heard on tape) [8] "Change question to a statement"(question heard on tape) [9] "Reverse the positions of 'tables'and 'chairs'"(in statement heard on tape)[17] "Count by 8's from 40 to 64." [19]	--	--	--
IV-1	0-12	New vocabulary and constructions relating to names of people (titles) and objects.	--	Surnames are monosyllables. Surname-Title construction.	[1] Wáng as surname [1] Lǐ " " [1] Jāng " " [2] syānsheng = Mr., sir, gentleman [6] tàitai = Mrs., madam, wife [7] syǎujye = Miss,daughter [8] sying = to be surnamed [9] gwèisying = polite form of sying [11] dūngsyi = thing, object [12] jyàu = to be called (EV) (of objects)
	13-26	New vocabulary and constructions; pronouns as possessives; kinship names; verbs jīdau and wèn.	Distinctions between nú, nyóu, nyú	Pronoun-Noun construction to indicate possession	[15] háidz = child [15] syǎuháidz = child [17] nán- = male prefix [20] nyǔ- = female prefix [24] jīdau = know [26] wèn = ask, inquire
	27-40	Practice with material presented in frames 0-26 and previously. Listening for rapid comprehension; answering questions in Chinese.	--	--	--

APPENDIX A (Continued)

Loop	Frames	Learning task	New grammar patterns	New vocabulary	New characters
IV-2	0-16	New vocabulary, especially verbs with fixed objects	--	[1] hwà = language [3] dz̀ = (Chinese) character [4] syě = write [5] hwèi = know how to [8] fàn = food, rice [9] chī = eat [10] táng = candy [11] dzwò = do, make [13] shì = task, affair [14] ài = love, love to [15] gēr = song [16] chāng = sing	--
	17-23	The hǎu-V construction; a number of examples.	hǎu-V construction	[21] jēn = really	--
	24-29	Discriminate meanings of kéyi, hwèi, néng; practice.	--	[24] kéyi = may [26] néng = can, be able [28] syàndzài = now	--
	30-41	Miscellaneous new vocabulary; apposition	Apposition: Pronoun-Noun	[30] ywànyi = wish to, be willing to [32] dàrén = adult [34] kèchi = be polite [40] bùdà = not very	--
IV-3	0-16	Review. Listen for comprehension; respond in various ways.	--	--	--
	17-28	Learn Mr. LǏ's part of a dialogue.	--	--	--
	29-40	Learn Mr. Wáng's part of a dialogue.	--	--	--
IV-4		(To be used only in Learning/Testing Modes)			
	0-40	Miscellaneous practice, answering questions or following instructions, "to gain more active command." Drill techniques similar to those of Loop III-4.	--	--	--
V-1	0-1	Introduction to writing Chinese characters. Distinctive features of strokes.	--	--	--
	2-11	Upper-left to lower-right rule; notice and discriminate various kinds of strokes; copy them.	--	--	--
	12-20	Simple combinations of strokes making certain characters are to be copied with attention to stroke order in order to learn principles governing it.	--	--	(The characters presented in these frames are not intended to be learned at this time.)
	21-30	Learn to recognize and write characters for numbers 1 to 10 (yī, èr, sān, etc.).			10 characters yī, èr, ... , shí 一 二 三 四 五 六 七 八 九 十
	31-40	Practice recognizing and writing various combinations of characters, to make numbers 11 to 99.	--	--	
V-2	0-40	Learn new vocabulary, grammar, characters in addition to review. (Characters inserted in transcriptions of Chinese sentences.)	[8] Use of -de to subordinate qualifiers to nouns. [28] yǒu-N as stative verb. [30] méi-N as negative stative verb.	[1] màudz = hat [8] -de, subordinating particle [10] syāngsya = rural countryside [26] yìsz = meaning, idea [28] yǒu chyán = be rich [29] yǒu yìsz = be interesting	[3] 大 dà = large [6] 太 tài = too [14] 人 rén = person [21] 是 shì = be [24] 不 bù = not [31] 也 yě = also [33] 我 wǒ = I [35] 你 nǐ = you [37] 他 tā = he [39] 們 -men = plural pronoun

APPENDIX A (Continued)

Loop	Frames	Learning task	New grammar patterns	New vocabulary	New characters
V-3	0-40	Learn new vocabulary, characters, in addition to review. S required to write in Chinese (transcription only) and translate.		[1] fùchin = father [5] mǔchin = mother [9] fùmǔ = parents [13] gēge = elder brother [17] dìdi = younger brother [21] jyějye = elder sister [25] meimei = younger sister [29] syīn = new [33] jyòu = old (≠new) [37] lǎu = old (age)	[3] 這 jèi=this [7] 個 -ge (measure) [11] 那 nèi or nèi, this or which [15] 有 yǒu = have [19] 沒 méi = not have [23] 好 hǎu = good [27] 很 hěn = very [31] 要 yàu = want [35] 百 bǎi = 100 [39] 千 chyān = 1000
V-4	0-16	Learn a few new words and review material of previous two loops. Mostly listen for comprehension and translate, or transcribe in Chinese (with characters)	—	[1] sywé = study, learn [3] sywésheng = student [5] dwō = much, too many [7] shǎu = little in quantity, few	—
	17-28	Learn A's part of a dialogue	—	—	—
	29-40	Learn B's part of the dialogue	—	—	—
VI-1	0-40	Learn new vocabulary and characters. Listen for comprehension and transcribe in Chinese (with characters where known), or read Chinese and translate.	[1] Modifying clauses with -de. [2] Same, before SP + N	[5] -wèi = measure for people (polite) [9] syē = several [13] syǎng = think, think about, desire [17] cháng = often, always [21] hē = drink [25] chá = tea [29] jyǒu = wine, liquor [35] érdz = son	[7] 的 -de = subord. particle [11] 小 syǎu = small [15] 少 shǎu = few [19] 多 dwō = many [23] 國 gwó = country [27] 中 jūng = middle [31] 本 běn = measure for volumes [33] 日 r as in Rben [37] 說 shwō = speak [39] 話 hwà = speech
VI-2	0-40	Learn new vocabulary and characters; study further examples of modification of nouns by verb clauses. (Techniques as in VI-1)	—	[1] nyǔer = daughter [5] tsūngming = bright, clever [9] dzwèi = most, extremely [13] nyàn = read aloud, study [17] nán = difficult [21] rúngyi = easy [25] tīng = listen [29] hwà = draw, paint [33] wén = language and literature [37] jyāu = teach	[3] 麼 -ma = interrog. particle [7] 甚 shém- = what [11] 都 dōu = all [15] 看 kàn = read, look at [19] 男 nán = male prefix [23] 女 nyǔ = female prefix [27] 兒 ér = as in érdz, son [31] 子 -dz as in yǐdz, etc. [35] 字 dz = Chinese character [39] 給 gěi = give
VI-3	0-20	Practice to gain more active command of material in loops VI-1 and VI-2. Listen for rapid comprehension while reading Chinese in "rebus" form; answer questions in Chinese (speaking and writing)	—	—	—
	21-30	Learn A's part of a dialogue	—	—	—
	31-40	Learn B's part of the dialogue	—	—	—

This loop will introduce you to a few of the sounds used in Chinese and the way of writing them. You will also learn about 10 words and see how you can form simple sentences with them.

LOOP I-1 FRAME 0

INTRODUCTION
TO
MANDARIN CHINESE

LESSON I
Loop 1

John B. Carroll
Wang Fang-Yu

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John B. Carroll

REF PMT ANS

(TAPESCRIPT)

[See P', Frame 41]

(Listen to the tape.)

Give answer in your own words.

I-1

1 2 3 4 5

They differ mostly in pattern or contour of pitch variation.

[Start here]

[Q] Listen to these four syllables. In what way are they most different?

mā má mǎ mà //

[A] - - - - //

The differences between these syllables are traditionally called differences in tone. There are four "tones" in Mandarin Chinese. (Many Chinese dialects have more than four tones.) Tone is very important because it makes differences in meaning.

LOOP I-1 FRAME 1

REF PMT ANS

(TAPESCRIPT)

[P] Frame 1. Listen to these four syllables again.

mā má mǎ mà //

How many tones are there in Mandarin Chinese?

(Press the button with the correct answer)

1 2 3 4 5

[Q] - - - - //

[A] Correct. //

mā ... má ... mǎ ... mà ...
1 2 3 4

The tones have numbers, as shown, which you will learn. Notice the diacritical marks for the four tones which are used in this transcription.

There are two ways of writing Chinese syllables. One is the use of Chinese characters. The other way, which we will use for the present, is the use of a _____.
(write answer)

LOOP I-1 FRAME 2

transcription

REF
PMT
ANS
1
2
3
4
5

(TAPESCRIPT)

[P] Frame 2. This is the way the four syllables look in the transcription we will use. Listen and repeat them as I read them:
mā .. má .. mǎ .. mà //

[Q] - - - - - //

[A] - - - - - //

Tone 1

mā ... lā ... fā ...

Pronounce with the proper tone:

mā ... lā ... fā ...

LOOP I-1 FRAME 3

mā	má	mǎ	mà
1	2	3	4

mā ... lā ... fā ...

REF
PMT
ANS
1
2
3
4
5

(TAPESCRIPT)

[P] Frame 3. Repeat these syllables in Tone 1.
mā ... lā ... fā ...
They are spoken, or almost sung, with a level pitch in the upper part of the voice register, as indicated by the musical notation. //

[Q] - - - - - //

[A] mā ... lā ... fā ... //

Tone 2

má ... lá ... fá ...

The musical notation suggests the pattern for this tone. Start in the lower middle of the voice register and glide up rapidly.

Pronounce with the proper tone:

má ... lá ... fá ...

LOOP I-1 FRAME 4

mā má mǎ mà

1 2 3 4

REF PMT ANS

1 2 3 4 5

má ... lá ... fá ...

(TAPESCRIPT)

[P] Frame 4. Repeat these syllables in tone 2:
má .... lá .... fá .. //

[Q] - - - - //

[A] má ... lá ... fá ... //

Tone 3

mǎ ... lǎ ... fǎ ...

A syllable with the 3rd tone starts quite low and dips even lower before rising slightly.

Pronounce with the proper tone:

mǎ ... lǎ ... fǎ ...

LOOP I-1 FRAME 5

mā má mǎ mà

1 2 3 4

REF PMT ANS

1 2 3 4 5

mǎ ... lǎ ... fǎ ...

(TAPESCRIPT)

[P] Frame 5. Repeat these syllables in Tone 3:
mǎ ... lǎ ... fǎ ... //

[Q] - - - - //

[A] mǎ ... lǎ ... fǎ ... //

Tone 4

mà ... là ... fà ...

The fourth tone falls sharply from fairly high to quite low.

LOOP I-1 FRAME 6

mā má mǎ mà

1 2 3 4

REF
PMT
ANS

(TAPESCRIPT)

[P] Frame 6. Repeat these syllables in tone 4:
mà ... là ... fà ... //

Pronounce with the proper tone:

mà ... là ... fà ...

1
2
3
4
5

[Q] - - - - //

[A] mà ... là ... fà ... //

mà ... là ... fà ...

Now we'll review the four tones. Learn to recognize the tones and think of the number of the tone.

mā má mǎ mà

1 2 3 4

LOOP I-1 FRAME 7

REF
PMT
ANS

(TAPESCRIPT)

[P] Frame 7. Now we'll review the four tones. Learn to recognize the tones and think of the number of the tone.
mā ... má ... mǎ ... mà //

Which tone?

mà

1
2
3
4
5

[Q] Which tone? mà //

[A] mà , fourth tone. //

mà 4th tone

We will now start giving you a few words in Chinese, with their meanings. For the present, pay attention mainly to the sound, in particular, the tone.

wǒ = I (1st person pronoun)

Notice the tone. Look at the reference area, if necessary.

LOOP I-1 FRAME 12

mā má mǎ mà

1 2 3 4

REF PMT ANS

Which tone?

wǒ

1 2 3 4 5

wǒ (third tone)

= I (1st person pronoun)

(TAPESCRIPT)

[P] Frame 12. We will now start giving you a few words in Chinese, with their meanings. For the present, pay attention mainly to the sound, in particular, the tone.

Repeat after me:

wǒ ... wǒ ...

This means, "I", the first person pronoun.//

[Q] wǒ ... wǒ ... //

[A] wǒ ... Tone 3, meaning "I," the first person pronoun. //

Listen and repeat:

hěn = very

Notice the tone and the pronunciation of the vowel.

LOOP I-1 FRAME 19

mā má mǎ mà

1 2 3 4

REF PMT ANS

Which tone?

1 2 3 4 5

hěn (3rd tone)

(TAPESCRIPT)

[P] Frame 19.

hěn ... hěn ...

meaning very. Notice the tone (the third tone) and the pronunciation of the vowel sound. The letter E will normally have the sound [ə] in our transcription.//

[Q] hěn ... hěn //

[A] hěn ... tone 3, meaning very. //

wǒ

Say aloud:

wǒ

LOOP I-1 FRAME 23

Count right only if you used the proper tone.

REF PMT ANS 1 2 3 4 5

(TAPESCRIPT)

[P] Frame 23. In the next few frames, you will practice pronouncing syllables. Say aloud what you see now. ....[3 sec.]..... wǒ In this practice, try always to anticipate the sound on the tape.//

[Q] - - - - //

[A] wǒ //

Listen and repeat the Chinese:

wǒ hǎu ..

= I'm fine.

nǐ hǎu ..

= you're well.

[Select translation]

1. I'm fine.
2. You're fine.

LOOP I-1 FRAME 29

Correct.

REF PMT ANS 1 2 3 4 5

(TAPESCRIPT)

[P] Frame 29. We are now ready to learn some simple sentences. Pay most attention to the meanings, but continue to use the correct tones. Listen and repeat:

wǒ hǎu ... I'm fine, good.

nǐ hǎu ... you're well//

[Q] wǒ hǎu //

[A] - - - - //

Repeat the Chinese and think of the meaning:

nǐ hǎu

tā hǎu

[Select translation]

1. I'm well
2. You're well
3. He's well

LOOP I-1 FRAME 30

Correct.

REF
PMT
ANS
1
2
3
4
5

(TAPESCRIPT)

[P] Frame 30.

nǐ hǎu ... you're well.

tā hǎu ... he's well.//

[Q] tā hǎu //

[A] - - - - //

Repeat the Chinese and think of the meaning:

wǒ hǎu

nǐ hǎu

tā hǎu

Say in Chinese:

You're well.

LOOP I-1 FRAME 31

nǐ hǎu

Count right only if you used the correct tones.

REF
PMT
ANS
1
2
3
4
5

(TAPESCRIPT)

[P] Frame 31....

wǒ hǎu ... I'm well.

nǐ hǎu ... you're well.

tā hǎu ... he's well.//

[Q] - - - - //

[A] nǐ hǎu //

Repeat the Chinese and note meaning:

wǒ hǎu

wǒ máng ("busy, occupied")

Notice also that in these sentences there is nothing corresponding to English to be (is, are, etc.). This is because words like hǎu and máng include the notion of "to be." They are stative verbs because they describe state or quality.

LOOP I-1 FRAME 34

REF
PMT
ANS

(TAPESCRIPT)

[P] Frame 34.....

wǒ hǎu ....

I am fine, well.

wǒ máng ....

I'm busy, occupied.//

hǎu and máng are

what kind of verbs?

(Say or write your answer.)

1
2
3
4
5

[Q] - - - - //

[A] - - - - //

hǎu , máng

STATIVE verbs

Here are two more stative verbs:

wǒ gāu ("tall")

tā lèi ("tired")

LOOP I-1 FRAME 35

REF
PMT
ANS

(TAPESCRIPT)

[P] Frame 35 ....

wǒ gāu ....

I'm tall

tā lèi ....

he's tired. //

Select translation:

1. I'm tall
2. I'm tired
3. He's tall
4. He's tired

1
2
3
4
5

[Q] wǒ lèi. //

[A] I'm tired. //

wǒ lèi =

I'm tired

Repeat and think of the meaning:

tāmen lèi

wǒ máng

LOOP I-1 FRAME 37

REF PMT ANS

1. We're tall.
2. You're tall.
3. We're well.
4. You're well.
5. You (plu.) are tall.

1
2
3
4
5

wǒmen gāu

= we're tall.

(TAPESCRIPT)

[P] Frame 37....

tāmen lèi....

they are tired.

wǒ máng ....

I'm busy.//

[Q] wǒmen gāu //

[A] we're tall.//

Practise saying in Chinese:

(Answers in Reference Area)

We're busy.

You're (sing.) tall.

I'm tired.

They are well.

LOOP I-1 FRAME 38

REF PMT ANS

Wǒmen máng

Nǐ gāu

Wǒ lèi

Tāmen hǎu.

(TAPESCRIPT)

[P] Frame 38...../

Say in Chinese:

He's tall.

1
2
3
4
5

Tā gāu

[Q] - - - - //

[A] Tā gāu //

Practise saying in Chinese:
(Answers in Reference Area)

You are well.

They are tired.

She's tall.

We're fine.

LOOP I-1 FRAME 40

Nǐ hǎu

Tāmen lèi.

Tā gāu.

Wǒmen hǎu

REF
PMT
ANS

Say in Chinese:

She's busy.

1
2
3
4
5

Tā máng.

(TAPESCRIPT)

[P] Frame 40..... //

[Q] - - - - //

[A] Tā máng. //

Practise saying in Chinese:
(Answers in Reference Area)

I'm fine.

He's busy.

We're busy.

You (plu.) are tall.

LOOP I-1 FRAME 41

Wǒ hǎu

Tā māng

Wǒmen máng.

Nǐmen gāu.

REF
PMT
ANS

Say in Chinese:

They are well.

1
2
3
4
5

Tāmen hǎu.

(TAPESCRIPT)

[P] Frame 41..... //

[Q] - - - - //

[A] Tāmen hǎu. //

[P'] This is Frame Zero. You may either continue in the same or a different learning mode, or turn off the machine. //

bàu
dé
gwó
} VOICELESS INITIAL CONSONANTS

LOOP I-2 FRAME 37

REF
PMT
ANS

The initial consonants in

bàu, dé, gwó

are _____.

[See Prompt Area if necessary.]

VOICED or VOICELESS?

1
2
3
4
5

VOICELESS

(TAPESCRIPT)

[P] Frame 37. Listen carefully to the initial sounds of these syllables you already know:

bàu ... dé ... gwó ...

These initial consonants do not have exactly the same values they do in English. B, D, and G in English are voiced consonants, that is, they are accompanied by voiced sound from the larynx. To exaggerate a bit, we say in English mboy, ndog, ŋgun. But in Chinese, these sounds are voiceless; they are not accompanied by sound from the larynx:

bàu... dé... gwó //

[Q] - - - - //

[A] - - - - //

UNASPIRATED		ASPIRATED
dà	. . . . .	tà
bàu	. . . . .	pàu
gwó	. . . . .	kwó

BOTH are VOICELESS

For convenience, we use the letters b, d, and g to represent unaspirated sounds in Chinese.

LOOP I-2 FRAME 38

REF
PMT
ANS

Which is pronounced?

1. dà bàu
2. dà pàu
3. tà bàu
4. tà pàu

1
2
3
4
5

dà pàu

(TAPESCRIPT)

[P] Frame 38.. Listen to the following pairs of sounds:

dà.. tà..
bàu.. pàu..
gwó.. kwó..

In each case, both sounds are voiceless. But the first sound is unaspirated, while the second sound is aspirated. An aspirated sound has a little breath emitted just after the release: t^ha, while the unaspirated sound doesn't, da. I will now repeat the pairs once more:

dà.. tà..
bàu.. pàu..
gwó.. kwó.. //

[Q] dà pàu //

[A] Correct: dà pàu //

This loop presents no new material. It will stress (a) rapid comprehension and (b) asking and answering questions in Chinese.

In the first 20 frames, the P-area (in this space) will present printed questions in English, while the tape will speak one or more sentences. Try answering the questions without looking at the Reference Area, where you will find the answers. The Q- and A- phases will present similar material.

LOOP I-3 FRAME 0

INTRODUCTION
TO
MANDARIN CHINESE

LESSON I
Loop 3

John B. Carroll
Wang Fang-Yu

Copyright 1961
John B. Carroll

I-3

REF PMT ANS

(TAPESCRIPT)

[See Frame 40]

- - - - - - - - - - - - - -

[Start here]

According to the Chinese sentence, who is tired?

1. I
2. you (sing., polite)
3. you (plural)
4. we

1 2 3 4 5

[Q] Wǒ máng. Nín lèi. //

[A] - - - - //

LOOP I-3 FRAME 1

Who is tired?

(Answer to yourself without looking at the reference area.)

I'm tired.

REF PMT ANS

(TAPESCRIPT)

[P] Frame 1. Read the question and then listen to the Chinese..... wǒ lèi, tā bulèi. //

Who is not well?

1. We
2. You (plural)
3. They
4. You (singular)

1 2 3 4 5

[Q] nǐmen hěn hǎo, tāmen buhǎo.//

[A] - - - - //

Change what you hear into a simple question with .. ma.

Nín hǎu.

(Answer in Reference Area.)

LOOP I-3 FRAME 21

Nín hǎu ma?

REF
PMT
ANS

Make the sentence into a simple question.

_____ _____ ma?

Tā bugāu ma?

1
2
3
4
5

(TAPESCRIPT)

[P] Frame 21.. Change what you hear into a simple question with ma ...
Nín hǎu. //

[Q] .....
Tā bugāu. //

[A] Tā bugāu ma? //

Listen and change into a "choice-type" question.

(Answer in Reference Area)

LOOP I-3 FRAME 23

Nín máng bumáng?

REF
PMT
ANS

Change into a "choice-type" question:

See Reference Area

Tāmen lèi bulèi?

1
2
3
4
5

(TAPESCRIPT)

[P] Frame 23... Listen and change into a choice-type question:
Nín máng. //

[Q] .....
Tāmen lèi. //

[A] Tāmen lèi bulèi? //

dèi tèi

páu báu

kăn găn

Which syllable is pronounced?

1. páu
2. báu
3. pău
4. bău

LOOP I-3 FRAME 37

REF PMT ANS

1 2 3 4 5

(TAPESCRIPT)

[P] Frame 37.. Practise hearing distinctions as these syllables are read:

dèi.. tèi..

páu.. báu..

kăn.. găn.. //

[Q] ..... pău //

[A] - - - - //

Because there is no vocal sound accompanying the production of the initial stop consonants

p-, b-, t-, d-, k-, g-,

they are said to be _____

The initial stop consonants p-, b-, t-, d-, k-, and g-, are

_____

(Say or write answer)

LOOP I-3 FRAME 39

_____less

voiceless

REF PMT ANS

1 2 3 4 5

(TAPESCRIPT)

[P] Frame 39..... //

[Q] - - - //

[A] - - - - //

This loop will present new vocabulary and grammatical material which will be further practised in the other two loops of this lesson.

LOOP II-1 FRAME 0

INTRODUCTION
TO
MANDARIN CHINESE

LESSON II
Loop 1

John B. Carroll
Wang Fang-Yu

Copyright 1961
John B. Carroll

REF PMT ANS

(TAPESCRIPT)

[See Frame 45]

(Say in Chinese:)

Don't we read American newspapers?

Wǒmen bukàn _____

_____ ma?

Wǒmen bukàn Měigwo

bàu ma?

1 2 3 4 5

[Start here]

[Q] - - - - //

[A] Wǒmen bukàn Měigwo bàu ma? //

LOOP II-1 FRAME 1

REF PMT ANS

(TAPESCRIPT)

Listen, repeat, note the new word.

[P] Frame 1.....

Tā mǎi bàu ....

He buys newspapers..

Again,

Tā mǎi bàu....

Another possible translation is:

She is buying a newspaper. //

Write the second word in the Chinese sentence, with its English translation.

Nín _____ bàu ma?

mǎi = buy

Did you mark the tone correctly?

1 2 3 4 5

[Q] Nín mǎi bàu ma? //

[A] mǎi, 3rd tone. //

(Listen and repeat:)

Jèige shì bǐ.

Jèige bǐ hǎukàn.

Nèige shì shū.

shì = "is, are"

LOOP II-1 FRAME 39

REF PMT ANS

(Select translation)

1. This is an American book.
2. That is an American book.
3. This book is American.
4. That book is American.

1 2 3 4 5

(TAPESCRIPT)

[P] Frame 39.....

Jèige shì bǐ....

This is a pen.

Jèige bǐ hǎukàn....

This pen is good-looking.

Nèige shì shū....

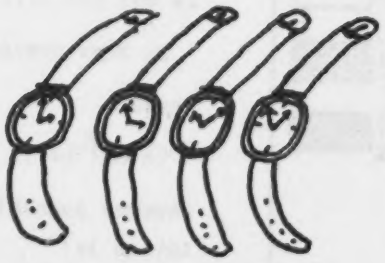
That is a book.//

[Q] .....

Jèige shì Měigwo shū. //

[A] Correct. //

Listen and repeat:



LOOP II-1 FRAME 44

REF PMT ANS

sìge byǎu

(Say in Chinese:)

I want 5 German clocks.

Wǒ yàu _____

Wǒ yàu wǔge Dégwo jūng.

1 2 3 4 5

(TAPESCRIPT)

[P] Frame 44.....

sìge byǎu //

[Q] - - - - //

[A] Wǒ yàu wǔge Dégwo jūng. //

(Follow the tape recording:)

VOICELESS UNASPIRATED

jā já jǎ jà

jèige, jèige jūng

VOICELESS ASPIRATED

chā chá chǎ chà

Write the sounds you hear.

LOOP II-2 FRAME 14

jàn, chàn

REF PMT ANS

1 2 3 4 5

(TAPESCRIPT)

[P] Frame 14.... In pronouncing the sounds represented here, pull your tongue far back. Repeat after me as I read each sound. The first series of sounds are - voiceless aspirated:

jā.. já.. jǎ.. jà..

jèige.., jèige jūng..

But the next series are aspirated:

chā.. chá.. chǎ,. chà //

[Q] .....

jàn,... chàn //

[A] - - - - //

(Listen for comprehension:)

1. Jèiben shū Fàgwo shū.
2. Jèiben hǎukàn.

Notice that shū is used in the first sentence, but not in the second. Why?

(See Reference Area.)

(Say in Chinese:)

That book is expensive.

LOOP II-2 FRAME 35

The patterns of these two sentences are:

1. Specifier-Verb-Noun Phrase.
2. Specifier-Stative Verb.

Each sentence has one verb.

Nèiben shū _____

Nèiben shū gwèi.

REF PMT ANS

1 2 3 4 5

(TAPESCRIPT)

[P] Frame 35.....

Jèiben shū Fàgwo shū.

Jèiben hǎukàn. //

[Q] - - - - //

[A] Nèiben shū gwèi. //

PATTERN PRACTICE

(Listen and repeat each sentence:)

Tāmen gěi wǒ jūng ..
NǏ " " shū ..
NǏmen " wǒmen " ..
Tā " " chyán ..
Wǒmen " nǏ " ..
Wǒ " " bǏ ..

NOW GO TO REFERENCE AREA ---→

LOOP II-3 FRAME 19

Practise saying in Chinese:

They give me clocks.
You give me books.
You (plu) " us " .
He gives " money.
We give you " .
I " " pens.

REPEAT THE LIST AT LEAST TWICE.

REF PMT ANS

(Say in Chinese before you hear it on the tape:)

I give you books.

(If you succeed, press 1, otherwise 2, then 1.)

1 2 3 4 5

(TAPESCRIPT)

[P] Frame 19.....

Tāmen gěi wǒ jūng....

NǏ gěi wǒ shū....

NǏmen gěi wǒmen shū....

Tā gěi wǒmen chyán....

Wǒmen gěi nǏ chyán....

Wǒ gěi nǏ bǏ.... //

[Q] .....[8 seconds].....

wǒ gěi nǏ shū. //

[A] - - - - //

LISTEN TO INSTRUCTIONS.

LOOP II-3 FRAME 25

REF PMT ANS

(Give answer:)

(Very well)

1 2 3 4 5

(TAPESCRIPT)

[P] Frame 25..... You will now start learning a dialogue between two persons, A and B. First you will learn B's answers to A. Thus, repeat only the second voice.

(A) Nín hǎu ma?

(B) Wǒ hěn hǎu.//

[Q] Nín hǎu ma? //

[A] Wǒ hěn hǎu. //

(Dialogue starts again.)

LOOP II-3 FRAME 33

REF PMT ANS

(TAPESCRIPT)

[P] Frame 33.... You will now learn A's part, and the machine will answer you. Repeat this first sentence of the dialogue:
nín hǎu ma? //

Start the dialogue again. Confirmation of your utterances will appear in the Answer Area, and after a short pause, the machine will answer, to lend realism.

How are you (polite)?

Nín hǎu ma?

1
2
3
4
5

[Q] - - - - //

[A] ...[5 seconds]
wǒ hěn hǎu.//

(Continue as directed.)

LOOP II-3 FRAME 34

REF PMT ANS

(TAPESCRIPT)

[P] Frame 34..... Your next sentence is:
nín lèi bulèi
Repeat this sentence when you get to the Q-area. //

Are you tired, or not?

Nín lèi bulèi?

1
2
3
4
5

[Q] - - - - //

[A] ..[5 seconds].....
Bùhen lèi. Wǒ hěn máng.//

Listen and repeat:

mài ..... to sell

(note the contrast in tone with mǎi "to buy")

Tā mài shū .....

He sells books.

LOOP III-2 FRAME 10

REF PMT ANS

(TAPESCRIPT)

[P] Frame 10... Listen and repeat: mài ..... to sell. Note the contrast in tone with mǎi "to buy". Tā mài shū ..... He sells books. //

Do you _____?

1. buy paper
2. sell paper
3. buy paintings
4. sell paintings
5. sell newspapers

Nǐ mài hwàr bumài? =

Do you sell paintings?

1 2 3 4 5

[Q] ..... Nǐ mài hwàr bumài? //

[A] Correct. //

Listen and repeat:

dwōshau..... how many? how much?

dwōshau shū..... how many books?

dwōshau jǐr..... how much paper?

See Reference Area

LOOP III-2 FRAME 12

REF PMT ANS

Note the contrast between jǐ and dwōshau:

Jǐben shū / Dwōshau shū } How many books?

1. jǐ is followed by a measure; dwōshau is not.
2. jǐ implies less than 10; Dwōshau sets no limit.

(TAPESCRIPT)

[P] Frame 12.... Listen and repeat: dwōshau..... how many or how much dwōshau shū ..... How many books? dwōshau jǐr? .... how much paper? //

He has _____

1. 60 cents
2. 90 cents
3. how many dimes?
4. how much money?
5. how much paper?

dwōshau chyán =

how much money?

1 2 3 4 5

[Q] ..... Tā yòu dwōshau chyán? //

[A] Correct. //

Listen for comprehension:

Měigwo byǎu budōu gwèi. Yǒude tài gwèi, yǒude butài gwèi, yǒude hěn pyányi.

American watches are not all expensive. Some are too expensive, some are not too expensive, some are very cheap.

LOOP III-3 FRAME 14

REF
PMT
ANS

(TAPESCRIPT)

[P] Frame 14.... Listen for comprehension:
Měigwo byǎu budōu gwèi. Yǒude tài gwèi, yǒude butài gwèi, yǒude hěn pyányi. //

Answer negatively with a full sentence.

What is this?
Is it a _____?

1
2
3
4
5

[Q] ....[5 seconds].....
Jèi shr shémma?
Shr jūng ma? //

Jèi búshr jūng.
= This is not a clock.

[A] Correct. //

Listen and note what activity is contemplated.

Wǒ tài máng, yě tài lèi.
Buyàu kàn bàu.

I am too busy and also too tired. (I) don't want to read a newspaper.

LOOP III-3 FRAME 15

REF
PMT
ANS

(TAPESCRIPT)

[P] Frame 15.... Listen and note what activity is contemplated:
Wǒ tài máng, yě tài lèi.
Buyàu kàn bàu. //

(Select translation)

1. I just want to read a newspaper.
2. I don't want to read a newspaper.
3. I want to read a book.
4. I don't want to read a book.
5. I just want to read a book.

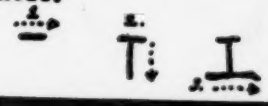
1
2
3
4
5

[Q] .....
Wǒ jyòu yàu kàn bàu. //

Wǒ jyòu yàu kàn bàu. =
I just want to read a newspaper.

[A] Correct. //

Now let's take some of the strokes we have learned and combine them into characters. Here is a character that looks a bit like the capital letter "I" in English. It illustrates the rule of top before bottom. First write the top horizontal, next the vertical, and last the bottom horizontal.



Write the Chinese character that looks somewhat like the capital letter "I" in English.

LOOP V-1 FRAME 12

REF
PMT
ANS

1
2
3
4
5

(TAPESCRIPT)

[P] Frame 12... Now let's take some of the strokes we have learned and combine them into characters. Here is a character that looks a bit like the capital letter "I" in English. It illustrates the rule of top before bottom. First write the top horizontal, next the vertical, and last the bottom horizontal. //

[Q] - - - - //

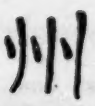
[A] Be sure that you write this in 3 strokes from top to bottom. //

Here is a character made up alternately of 3 dots and 3 vertical lines. It illustrates the rule of left before right:

Write the character made up alternately of 3 dots and 3 vertical lines.

LOOP V-1 FRAME 13

REF
PMT
ANS



1
2
3
4
5

(TAPESCRIPT)

[P] Frame 13... Here is a character made up alternately of 3 dots and 3 vertical lines. It illustrates the rule of left before right.//

[Q] - - - - //

[A] Did you write this in six strokes from left to right? //

Learn this character for:

tài = too, excessively

太 一 ナ 大 太

(Note that 太 differs from 大 "large" only in the addition of the dot.)

LOOP V-2 FRAME 6

REF PMT ANS

Write the characters spoken, and translate.

1 2 3 4 5

太 大

too big

(TAPESCRIPT)

[P] Frame 6. - - - - //

[Q] ..... tài dà //

[A] Be sure that you have a dot as the fourth stroke for tài.

Study the written form of these expressions:

太 大 = too big

Wáng 太 太 = Mrs. Wáng

LOOP V-2 FRAME 7

REF PMT ANS

Listen, write in Chinese, and translate.

1 2 3 4 5

Wáng 太太 shwō 一ge màudz 太大，一ge 太 syǎu. = Mrs. Wang says one hat is too big, one is too small.

(TAPESCRIPT)

[P] Frame 7... Study the written form of these expressions:

tài dà .....

too big.

Wáng Tàitài.....

Mrs. Wáng //

[Q] .....

Wáng Tàitài shwō yíge màudz tài dà, yíge tài syǎu. //

[A] Mrs. Wáng says one hat is too large, one is too small. //

Appendix C - Information Sheet

FOR STUDENTS COOPERATING IN TRIALS OF THE LANGUAGE TEACHING MACHINE

(EXPERIMENT I)

General

There is much current interest in whether a machine of this sort can teach a foreign language effectively and materially supplement the work of a regular language instructor.

We do not necessarily believe that language teaching should be conducted without the use of human instructors, particularly native speakers, but in order to give the idea of machine teaching a real workout, we are putting all the burden of instruction on the machine. You will get no instruction other than what you get from the machine, at least not until after you finish the current series of trials.

Thus far, we know very little about what can and cannot be done by teaching machine. A number of possible procedures have been incorporated into the "program" which has been written for this machine. You will see that the machine is quite versatile in comparison with some of the simpler teaching machines now being tried out. We will want to get yoour help in evaluating our procedures.

We have put much effort into preparing the machine and the material so as to do the best job we can of teaching you elementary spoken Mandarin Chinese. The lesson material is adapted from materials in use at the Institute of Far Eastern Languages at Yale University, and the voice you will hear speaking Chinese on the machine is the tape-recorded voice of a native speaker of Chinese.

It is important for you to play the role of a student who is highly motivated to learn to speak and understand Mandarin Chinese (the dominant dialect of present-day China). Whether you actually care about learning Chinese or not, please try to give us your best effort. Assume you have to learn Chinese. We cannot guarantee, of course, that you will learn as much ar as fast as you would by other means, but there are reasonable grounds for thinking that you will not only learn as fast as you would by conventional instruction, but also probably faster and more efficiently.

Arrangement of the lessons

The current series of materials that we are evaluating comprise two "lessons." Each lesson happens to have three "loops." (You will shortly find out what we mean by a "loop." Later lessons may have more loops than three.) Thus, the six loops we want to have you work on are designated as follows:

I-1
I-2
I-3
II-1
II-2
II-3

As you will discover when you start using the machine, each loop can be "played" in two "modes," which we are tentatively calling "Familiarization" and "Learning." Actually, you will be "learning" during each of these modes, but in the "Familiarization" mode you are given much more help and information than you are in the "Learning" mode.

You must go through each loop at least once in each of these modes. But we expect that most students will want to go through each loop in each mode more than once. Each loop has about 40 "frames," and each frame has a question or problem of some sort. We ask that you go through each loop in each mode until you make no more than 4 errors. (In the "Learning" Mode, you must be able to go through the loop with no more than 4 errors and with no use of the "prompt" button, as will be explained to you.)

But you are at liberty to go through each loop in each mode as many times as you like, until you feel that you have gained a satisfactory degree of competence. You are the judge of your progress.

If you wish to revert to an earlier loop in the series, you may do so, in either the familiarization or the learning mode. Just inform the assistant which loop you want.

For mechanical reasons, once you have started a loop in a particular mode, you must finish it—and remain in that mode. You will quickly get an idea of how long it takes you to go through a loop.

When you finish the last loop in the series, you will be given a brief test, off the machine, so that we may see how well you have learned the content of the lessons.

After that, they may be an opportunity for you to continue working with the machine and complete the equivalent of about a half a semester's work with Chinese. This will include some work with written Chinese, that is, the characters.

Miscellaneous matters

Much of the time, an assistant will be unobtrusively watching you to notice any particular difficulties you are having. He will also help rectify any mechanical difficulties that may show up in the machine. Try not to pay any attention to the assistant while working on a loop; behave as if you were alone with the machine. When the machine asks you to say things aloud, speak up so that the assistant can hear. But you will often have to evaluate the correctness of your responses; the assistant, you may assume, knows nothing about Chinese and cannot help you.

After you finish each "trip" through a loop, in whatever mode, the assistant will ask you a few brief questions in order to complete a form. If the assistant is not present, make a record of the number of right and wrong answers (as determined from the mechanical counters), and clear the counters for the next playing of a loop.

The assistant will explain the operation of the machine to you during the first lesson. You will find it very easy. Be sure you understand:

1. Use of A, B, and C buttons to progress through the loop.
2. Use of multiple choice buttons.
3. Use of R and W buttons to evaluate your own response.
4. Use of P button during Learning Mode.
5. Method of clearing counters.
6. Use of film and tape advance buttons (only to synchronise program)

Appendix D - Information Sheet

FOR STUDENTS COOPERATING IN TRIALS OF THE LANGUAGE TEACHING MACHINE

(EXPERIMENT II)

General

There is much current interest in whether a machine of this sort can teach a foreign language effectively and materially supplement the work of a regular language instructor.

We do not necessarily believe that language teaching should be conducted without the use of human instructors, particularly native speakers, but in order to give the idea of machine teaching a real workout, we are putting all the burden of instruction on the machine. You will get no instruction other than what you get from the machine, at least not until after you finish the current series of trials.

Thus far, we know very little about what can and cannot be done by teaching machine. A number of possible procedures have been incorporated into the "program" which has been written for this machine. You will see that the machine is quite versatile in comparison with some of the simpler teaching machines now being tried out. We will want to get your help in evaluating our procedures.

We have put much effort into preparing the machine and the material so as to do the best job we can of teaching you elementary spoken Mandarin Chinese. The lesson material is adapted from materials in use at the Institute of Far Eastern Languages at Yale University, and the voice you will hear speaking Chinese on the machine is the tape-recorded voice of a native speaker of Chinese.

It is important for you to play the role of a student who is highly motivated to learn to speak and to understand Mandarin Chinese (the dominant dialect of present-day China). Whether you actually care about learning Chinese or not, please try to give us your best effort. Assume you <u>have</u> to learn Chinese. We cannot guarantee, of course, that you will learn as much or as fast as you would by other means, but there are reasonable grounds for thinking that you will learn not only as fast as you would by conventional instruction, but also probably faster and more efficiently.

<u>Arrangement of the lessons</u>

The current series of materials that we are evaluating comprise <u>six "lessons."</u> Each lesson has three or more "loops." (You will shortly find out what we mean by a "loop". Thus, the loops we want to have you work on are designated as follows:

I - 1	II - 1	III - 1	IV - 1	V - 1	VI - 1
- 2	- 2	- 2	- 2	- 2	- 2
- 3	- 3	- 3	- 3	- 3	- 3
	- 4	- 4	- 4		
			- 5		

As you will discover when you start using the machine, each loop can be "played" in two "modes," which we are tentatively calling "Familiarization" and "Learning." Actually, you will be learning during each of these modes, but in the "Familiarization" mode you are given much more help and information than you are in the "Learning" mode.

You must go through each loop at least once in each of these modes. But we expect that most students will want to go through each loop in each mode more than once. Most loops have about 40 "frames" a piece, and each frame has a question or problem of some sort.

You are at liberty to go through each loop in each mode as many times as you like, until you feel that you have gained a satisfactory degree of competence. You are the judge of your progress.

If you wish to revert to an earlier loop in the series, you may do so, in either the familiarization or the learning mode. Just inform the assistant which loop you want.

For mechanical reasons, once you have started a loop in a particular mode, you must finish it--and remain in that mode. You will quickly get an idea of how long it takes you to go through a loop.

At the end of lesson II and again at the end of lesson VI, you will be given a brief test, off the machine, so that we may see how well you have learned the content of the lessons.

Miscellaneous matters

Much of the time, an assistant will be unobtrusively watching you to notice any particular difficulties you are having. He will also help rectify any mechanical difficulties that may show up in the machine. Try not to pay any attention to the assistant while working on a loop; behave as if you were alone with the machine. When the machine asks you to say things aloud, speak up so that the assistant can hear. But you will often have to evaluate the correctness of your responses; the assistant, you may assume, knows nothing about Chinese and cannot help you.

After you finish each "trip" through a loop, in whatever mode, the assistant will ask you a few brief questions in order to complete a form. If the assistant is not present, make a record of the number of right and wrong answers (as determined from the mechanical counters), and clear the counters for the next playing of a loop.

The assistant will explain the operation of the machine to you during the first lesson. You will find it very easy. After you have been through the first loop, the first time, be sure you understand:

1. Use of A, B, and C buttons to progress through the loop.
2. Use of multiple choice buttons.
3. Use of R and W button during Learning Mode.
4. Use of P button during Learning Mode.
5. Method of clearing counters.
6. Use of film and tape advance buttons (only to synchronize program).
7. Use of tape stop lever.

Appendix E - Record Form For a "Trip" through a Loop

(Use a new form for each "trip" through a loop)

Srudent: _____ **Date** _____ **Loop** _____

Which loop today? 1st 2nd 3rd 4th 5th 6th 7th 8th "trip" (circle)

Circle as approp. L F

1 2 3 4 5 6 7 8 9 ("trip")

Reversion?____

Time Start _____ **Time Finish** _____ **Elapsed** _____ **(compute)**

Right ___ **Wrong**___ **(from counters)**

DON'T FORGET TO CLEAR COUNTERS

Time out for mechanical difficulties _____

W	P	Remarks on particular frames
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	
10	10	
11	11	
12	12	
13	13	
14	14	
15	15	
16	16	
17	17	
18	18	
19	19	
20	20	
21	21	
22	22	
23	23	
24	24	
25	25	
26	26	
27	27	
28	28	
29	29	
30	30	
31	31	
32	32	
33	33	
34	34	
35	35	
36	36	
37	37	
38	38	
39	39	
40	40	
41	41	
42	42	
43	43	
44	44	
45	45	
46	46	

Ratings (by student)

Lesson Material:

Easy __:__:__:__:__ **Diffi.-cult**
1 2 3 4 5

Boring__:__:__:__:__ **Challenging**

Feelings of student

Tired__:__:__:__:__ **Alert**
1 2 3 4 5

No Progress Felt __:__:__:__:__ **Feels he has learned much this loop "this loop"**
1 2 3 4 5

Other remarks: by student

_____

_____

_____

Other remarks: by observer

_____

_____

_____

If this was the first loop trip made today, when was the last time on the machine?

_____

Student report of any intervening voluntary or involuntery practice:

Appendix F

Name (K E Y) Date

TESTS ON LESSONS I AND II
MANDARIN CHINESE

Part I-A. Transcribing syllables. You will hear a series of syllables in Chinese. Each syllable will be spoken twice. Write each syllable in the space assigned to it below. Mark the tones as they are pronounced. Note: These syllables are new words; their tones may be different from similar words you have learned. Transcribe exactly what you hear, using the transcription you have learned.

1. nì with Tone # 4
2. māng with Tone # 1
3. mài with Tone # 4
4. dǎu with Tone # 3

For the remainder of the syllables, indicate the tones solely by the appropriate diacritical mark.

5. lái
6. táu
7. jyā
8. píng
9. bì
10. yāng
11. lyǎng
12. hài
13. ráng
14. jěn
15. jī
16. chā
17. shěn
18. byàu
19. pyáng
20. fàn

[Max. possible=20]

Part I-B. Transcribing numbers. In the spaces below, write the arabic numerals corresponding to what you hear. There will be five numbers in each group. The numbers will be spoken with the -go suffix.

21. 1 6 9 5 6
22. 2 7 4 5 3
23. 8 3 5 4 9
24. 1 4 2 7 8
25. 7 5 3 6 2

[Max.possible=25]

APPENDIX F (Continued)

Part I-C. Understanding Chinese. Translate the sentences you will hear on the tape. Each sentence will be spoken twice. Write the English translation.

[Keying: 1 point for each underlined element (or equivalent) correctly given. The number of points for each sentence is given in brackets at the left.]

[2] 1. You (plu.) are busy

[2] 2. He's tired

[4] 3. I'm not very tall

[3] 4. Are you(S.P.) well or not?

[4] 5. Do you(S.P.) read newspapers ?

[5] 6. We don't read German books.

[4] 7. Are American newspapers good or not?

[7] 8. They are very well; we are not very well.

[5] 9. I want to buy two newspapers.

[9] 10. I don't want American pens, I want English pens.

[5] 11. Aren't French pens good-looking ?

[4] 12. Are Chinese books inexpensive or not?

[4] 13. Japanese newspapers are very expensive.

[2] 14. Who's good-looking?

[4] 15. Which is an American book?

[5] 16. I want six foreign pens.

[7] 17. I am not giving him a watch, but a clock.

[4] 18. What do you (plu.) want to buy ?

[7] 19. I want to give you four Japanese watches.

[3] 20. Not all books are good-looking.

[7] 21. Is he giving me one American newspaper (or not)?

[7] 22. I read French books, not Chinese ones.

[5] 23. He's tall, and very good-looking too.

[8] 24. I don't have American watches, I have American newspapers.

[6] 25. Please (you) give us two watches.

[Max. possible=123]

APPENDIX F (Continued)

[DIRECTIONS FOR EXAMINEE RECORDING RESPONSES ON TAPE]

TEST ON LESSONS I AND II
MANDARIN CHINESE
PART II

1. Say your name and the date, to identify the tape.

2. Say, "Part II-A," and then read aloud the following Chinese syllables:

má	lā	fà	mǎi	fǎng	tèi	dá	bō	pěn	tyāu
bài	mén	jǐ	shǐ	chā	chěng	sì	dź	swán	mīng

3. Say, "Part II-B," and then say the Chinese words for the following English words or expressions. If you do not know the answer for a given question, give the English word instead. Read down the columns. Go at a comfortable rate.

I	newspaper	want	which pen?
you(singular)	very	have	four watches
he	read	don't have	ten clocks
we	book	buy	two books
busy	expensive	this	eight newspapers
tall	American	that	French book
good	German	this pen	English pen
tired	Japanese	that pen	Chinese watch

4. Say, "Part II-C," and then say the following in Chinese:

1 pen	4 pens	7 pens
2 pens	5 pens	8 pens
3 pens	6 pens	9 pens
		10 pens

5. Say, "Part II-D," and then say the following in Chinese; go at a comfortable rate. Do not stop the tape at any time.

1. I'm well.
2. He's not tired.
3. Do you read newspapers?
4. French newspapers are not very good.
5. I want 5 pens.
6. The books are all good-looking.
7. I want to buy one foreign watch.
8. What is expensive?
9. This is a Chinese clock.
10. Who is giving us American books?
11. What does he want?
12. That book is very expensive.
13. We read both books and newspapers.
14. I don't have an English watch.
15. He is giving me a book, not money.

6. Say, "This is the end of the test for ___(your name)___."

APPENDIX F (Continued)

TEST ON LESSONS I AND II
TAPESCRIPT FOR PART I

Test on lessons one and two, Mandarin Chinese. Part I-A, Transcribing syllables. You will hear a series of syllables in Chinese. Each syllable will be spoken twice. Write each syllable in the space assigned to it on your answer sheet. Mark the tones as they are pronounced. Note: These syllables are new words; their tones may be different from those of similar words you have learned. Transcribe exactly what you hear, using the transcription you have learned.

1. nì ... nì ... with tone number .....
2. māng .... māng ... with tone number .....
3. mài .... mài .... with tone number .....
4. dǎu .... dǎu .... with tone number .....

For the remainder of the syllables, indicate the tones solely by the appropriate diacritical marks.

5. lái [twice]
6. táu ["]
7. jyā ["]
8. píng ["]
9. bì ["]
10. yāng ["]
11. lyǎng [twice]
12. hài ["]
13. ráng ["]
14. jěn ["]
15. jī ["]
16. chā ["]
17. shěn [twice]
18. byàu ["]
19. pyáng ["]
20. fàn ["]

Part I-B. Transcribing numbers. In the spaces provided, write the arabic numerals corresponding to what you hear. There will be five numbers in each group. The numbers will be spoken with the -ge suffix.

21. yíge, lyòuge, jyǒuge, wǔge, lyòuge
22. lyǎngge, chīge, sìge, wǔge, sānge
23. bāge, sānge, wǔge, sìge, jyǒuge
24. yíge, sìge, lyǎngge, chīge, bāge
25. chīge, wǔge, sānge, lyòuge, lyǎngge

APPENDIX F (Continued)

Part I-C. Understanding Chinese. Translate the sentences you will hear on the tape. Each sentence will be spoken twice. Write the English translation. [Each sentence is spoken twice, the two renditions being separated by a brief pause. Enough time is given to allow subjects to write the English translations.]

1. Nǐmen máng.
2. Tā lèi.
3. Wǒ buhěn gāu.
4. Nín hǎu buhǎu?
5. Nín kàn bàu ma?
6. Wǒmen bukàn Dégwo shū.
7. Měigwo bàu hǎu buhǎu?
8. Tāmen hěn hǎu, wǒmen buhěn hǎu.
9. Wǒ yàu mǎi lyǎngge bàu.
10. Wǒ buyàu Měigwo bǐ, wo yǎu Yínggwo bǐ.
11. Fàgwo bǐ buhǎukàn ma?
12. Jūnggwo shū pyányì bupyányì?
13. Rìben bàu hěn gwèi.
14. Shéi hǎukàn.
15. Něige shì Měigwo shū.
16. Wǒ yàu lyòuge waǐgwo bǐ.
17. Wǒ bugèi tā byàu, wǒ gèi tā jūng.
18. Nǐmen yǎu mǎi shémma?
19. Wǒ yǎu gèi nǐ sìge Rìběn byǎu.
20. Shū budōu hǎukàn.
21. Tā gèi wǒ yíge Měigwo bàu bugèi?
22. Fàgwo shū wo kàn, Jūnggwo shū wǒ bukàn.
23. Tā gāu, yě hěn hǎukàn.
24. Wǒ meìyǒu Měigwo byǎu, wǒ yǒu Měigwo bàu.
25. Chǐng nǐ gèi wǒmen lyǎngge byǎu..... That is the end of the test.

Appendix G

TEST ON LESSON III

Part I - Aural Comprehension.

Translate the Chinese sentences which you will hear. Each sentence will be spoken twice.

1. _____

_____

2. . . . . [Etc. Spaces provided for ten sentences.]

. . . .

Part II. Directions for subject's oral recording:

1. Say your name and the date, to identify the tape.
2. Say "Part II-A," and then read aloud the following Chinese syllables:

má	lā	fà	mǎi
fǎng	tèi	dá	bō
pěn	tyāu	bài	mén
jǐ	shì	chā	chěng
sì	dź	swán	mīng

3. Say, "Part II-B," and then say the Chinese words for the following English words or expressions. If you do not know the answer for a given question, give the English word instead. Read down the columns; go at a comfortable rate.

60	correct
32	two chairs
95	too large
47	everyone buys books
81	not everyone sells books
243	how many tables?
761	which man is speaking?
1005	I don't understand that tall man.
38,692	These five paintings are beautiful.
$5.15	Seven dollars isn't enough.
	Some friends are American.

4. Say, "This is the end of (your name) 's test."

Tapescript and key for Part I.

"Test on Lesson III, Mandarin Chinese. Aural Comprehension. Translate the Chinese sentences which you will hear. Each sentence will be spoken twice. Number 1."

Wǒ yàu mǎi wǔchyānjāng jǐr, kěshr tāmen jyòu yǒu sìchyān. [spoken twice; 5 sec. between repetitions; 32 seconds in interval before:]

Number 2. Tā shwō: Jèige jwōdz sānshírlyòukwài èr. Nǐ mǎi bumǎi? [ditto; then 25 seconds before:]

Number 3. Chǐng nǐ gěi wǒ syǎu hwàr, hǎu buhǎu? [ditto; then 20 seconds before:]

Number 4. Sz̀wàn líng sānbǎige shr̀ Jūnggwo rén, jyǒuchyān chībǎige shr̀ Rběn rén.
[spoken twice; 5 seconds between repetitions; then 35 seconds before:]

Number 5. Jèige rén budǔng. Nèige rén yě budǔng. Shéi dǔng?
[spoken twice; 5 seconds between repetitions; then 35 seconds before:]

Number 6. Wǒmen yǒu lyǎngge hǎu péngyou. Yíge shr̀ Jūnggwo rén, yíge shr̀ Rběn rén.
[spoken twice; 5 seconds between repetitions; then 25 seconds before:]

Number 7. Wǒ tài máng, yě tài lèi. Buyàu kàn bàu.
[spoken twice; 5 seconds between repetitions; then 30 seconds before:]

Number 8. Shū, bàu, jr̀, hwàr, wǒ dōu mài... Jèijāng hwàr mài dwōshau chyán?
[spoken twice; 5 seconds between repetitions; then 32 sec. before:]

Number 9. Yě yǒu. Chǐng kàn jèijāng syǎu hwàr... Hěn hǎukàn. Shr̀ Jūnggwo hwàr búshr̀?
[spoken twice; 5 seconds between repetitions; then 40 sec. before:]

Number 10. Shū shr̀ sānkwài èr...Shū, hwàr, yígùng gěi nǐ èrshŕkwài chyán, hǎu buhǎu?
[spoken twice; 5 seconds between repetitions; then 40 sec. before:]

This is the end of the test on aural comprehension.

Key: One point for each underlined element correctly given (or equivalent). The total number of points for each sentence precedes the translation.

(13) 1. I want to buy 5 thousand sheets of paper, but they have only 4 thousand.

(10) 2. He says: This table is thirty-six twenty [$36.20]. Will you buy it ?

(7) 3. Please give me a small painting, O.K. ?

(13) 4. 4 10,000 [40,000], 3 hundred are Chinese persons, 9 thousand 7 hundred are Japanese.

(11) 5. This person doesn't understand, that person also doesn't understand. Who understands?

(11) 6. We have 2 good friends. One is a Chinese (person), one is a Japanese (person).

(10) 7. I am too busy, and also too tired. I don't want to read a newspaper.

(11) 8. Books, newspapers, paper, paintings, I sell them all. How much does this painting sell for?

(13) 9. (I) also have them. Please look at this little painting... Very pretty. Is it a Chinese painting ?

(12) 10. The book is three twenty [$3.20]... (I'll) give you twenty dollars for the book and the painting altogether, O.K. ?

(Total points, 111)

Key for Part II.

Part II-A. One point for each Chinese syllable spoken correctly with correct phonemes and tone. (20 points in all).

Part II-B. One point for each word (syllable or disyllable). Disyllables given one point are underlined below. Total number of points given in parentheses.

lyòushŕ (2)
sānshŕèr (3)
jyǒushŕwǔ (3)
sz̀shŕchī (3)
bāshŕyī (3)
èrbǎi sz̀shŕ sān (5)

chībǎi lyòushŕ yī (5)
yìchyān líng wǔ (4)
sānwàn bāchyān lyòubǎi jyòushŕ èr (9)
wǔkwai yìmáu wǔ (-fēn chyán)* (5)

*optional, not counted

dwèi (1)
lyǎngge yǐdz (3)
tài dà (2)
rénrén mǎi shū (3)
rénrén budōu mài shū (5)
dwōshau jwōdz
jǐge jwōdz } (3)

nèige rén shwō (3)
[sentence not counted]
jèi wǔjāng hwàr hǎukàn (5)
chīkwai chyán bugòu (5)
yǒude péngyou shr̀ Měigwo rén. (5)
TOTAL: 77 points.

Appendix H

TEST ON LESSON IV

Part I. Aural comprehension. Translate the Chinese sentences which you will hear. Each sentence will be spoken twice.

[There are ten sentences, plus six numerical expressions. Appropriate spaces are furnished on the answer sheet, which is not reproduced in full here.]

Part II. Directions for oral recording.

Say your name and the date. Then say the Chinese for the following expressions or sentences:

1. Mr. and Mrs. Lee (both of them.
2. What is your name?
3. That son of his.
4. Her girl friend.
5. I don't know.
6. You're too polite.
7. Can you speak German?
8. You (all) may not eat candy now.
9. I can write 25 Chinese characters.
10. What kind of songs would you like to sing?

Say, "This is the end of (your name)'s test."

Part III. Write the Chinese (in transcription) for the above. If you wish to write an answer different from the way in which you spoke it, feel free to do so. Please indicate the tones with the usual diacritical marks.

[The answer sheet provides spaces in which students are to write answers.]

Tapescript for Part I, Comprehension.

"Test on Lesson IV, Mandarin Chinese, Aural Comprehension. Translate the Chinese sentences which you will hear. Each sentence will be spoken twice."

[Note: Each sentence is spoken twice by a Chinese woman, with a 5 second interval between repetitions; she also gives the number, in English. Parentheses at the end of each sentence indicate the number of seconds intervening from the end of the second repetition to the announcement of the number of the following sentence.]

Number 1. Rénrén dōu syǐhwan mǎi Měigwo dūngsyi, kěshr rénrén budōu syǐhwan mǎi Ègwo dūngsyi. (35)

Number 2. Wǒmen méiyou nǐ nèige jūng. (23)

Number 3. Chǐng nǐ gěi wǒ jèi wǔshí szběn shū. (23)

Number 4. Jèi lyǎngge nán háidz shì shéi? (23)

Number 5. Wǒ péngyou syìng Wáng. (23)

Number 6. Nǐ yàu mǎi shémma bàu? (25)

Number 7. Jèi bushì Rběn byǎu. (23)

Number 8. Jèijāng dà jwōdz, nèi bā syǎu yǐdz, tāmen dōu yàu gěi nǐ. (30)

Number 9. Wǒ yīgùng yě yǒu szwàn líng bājāng jǐ. (25)

Number 10. Wǒ yǒu yīdyar chyán, kěshr búgòu. (25)

Number 11. wǔwàn líng yī. (18) èrshí chīwàn jyǒuchyān lyòubǎi líng sān. (18) lyǎngkwài líng sz fēn. (18) wǔshí szkwài jyǒumáu chī. (18)

[Number 11, continued] èrbǎi líng bākwai yīmau yī. (18) lyòuchyān sìbǎi sānshŕchīkwài wǔ máu. (18)

This is the end of the test on aural comprehension.

Key for Part I: One point for each underlined element (or its equivalent) correctly given. (For example, plurals may be given instead of singulars, or vice versa, in many cases.) The total points for each sentence are listed at the left of each sentence.

(12) 1. Everybody likes to buy American things, but not everyone likes to buy Russian things.

(6) 2. We don't have that clock of yours.

(7) 3. Please give me these fifty-four books.

(5) 4. Who are these two sons?

(4) 5. My friend is named Wang.

(5) 6. What newspaper do you want to buy?

(5) 7. This is not a Japanese watch.

(11) 8. They want to give you this big table and those eight small chairs.

(8) 9. I have also altogether forty-thousand and eight sheets.

(7) 10. I have some (a little) money, but it's not enough.

11. (3) fifty-thousand and one. [50,001]

(8) twenty-seven (10,000's), nine thousand, six hundred, three. [279,603]

(4) two-dollars four cents [$2.04]

(5) fifty-four dollars ninety-seven (cents) [$54.97]

(5) two-hundred eight dollars eleven (cents) [$208.11]

(8) six-thousand four-hundred thirty-seven dollars fifty (cents) [$6437.50]

TOTAL POINTS: (103)

Key for Parts II and III: Two points for each underlined element (or equivalent correctly given, one of these being for the segmental phonemes, and the other being for the tone(s).

(12) 1. LǏ syānsheng, LǏ tàitai, lyǎngge rén.

(4) 2. Nín gwèisyìng ?

(8) 3. Tā nèige nán-háidz.

(6) 4. Tā nyǔ-péngyou.

(6) 5. Wǒ bujīdau.

(6) 6. Nín tài kèchi.

(12) 7. Nín hwèi shwō Dégwo hwà { ma ? / buhwèi ?

(12) 8. NǏmen bu kéyi chī táng syàndzài.

(16) 9. Wǒ hwèi (néng) syě èrshŕ wǔge Jūnggwo dz̀.

(10) 10. NǏmen ywànyi (aì) chāng shémma gēr ?

TOTAL POINTS EACH PART: (92)